

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte RALPH D. HERMANSEN and STEVEN E. LAU

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Appeal No. 1998-3242  
Application No. 08/700,133

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ON BRIEF

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Before GARRIS, WARREN, JEFFREY T. SMITH, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 1 and 4 which are all of the claims remaining in the application.

The subject matter on appeal relates to a flexible epoxy adhesive consisting of a certain type of epoxide resin and about 42-100 parts by weight of at least one latent epoxy resin curing

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agent which comprises a dihydrazide compound, wherein this combination is rheologically stable at room temperature, cures at about 100-125°C, and has a durometer Shore A of less than 95 upon cure to provide a flexible and reworkable epoxy bond. This appealed subject matter is adequately illustrated by independent claim 1 which reads as follows:

1. A flexible epoxy adhesive consisting of a combination of the following components:

(a) at least one epoxide resin having a hardness not exceeding a durometer Shore D reading of 45 when cured with a stoichiometric amount of diethylene triamine, said epoxide resin being selected from the group consisting of the diglycidyl ether of 4,4-butanediol, the diglycidyl ether of neopentyl glycol, the diglycidyl ether of cyclohexane dimethanol, the diglycidyl ether of polyoxypropylene glycol, and the polyglycidyl ether of an aliphatic polyol; and

(b) about 42-100 parts by weight of at least one latent epoxy resin curing agent per 100 parts by weight of resin, said latent epoxy resin curing agent comprising a dihydrazide compound,

wherein said combination is rheologically stable at room temperature, cures at about 100-125°C, and has a durometer Shore A of less than 95 upon cure to provide a flexible and reworkable epoxy bond.

The references set forth below are relied upon by the examiner as evidence of obviousness:

Kamio et al. (Kamio)	4,360,649	Nov. 23, 1982
Bagga et al. (Bagga)	4,734,332	Mar. 29, 1988
Vachon et al. (Vachon)	4,866,108	Sep. 12, 1989

Lee et al. (Lee), "Handbook of Epoxy Resins," McGraw Hill, pp. 2-16 through 2-18 (1982).

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Claims 1 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bagga in view of Kamio and further in view of Lee or Vachon.

We refer to the brief and to the answer for a complete exposition of the opposing viewpoints expressed by the appellants and by the examiner concerning the above noted rejection.

#### OPINION

For the reasons which follow, this rejection cannot be sustained.

It is the examiner's basic position that it would have been obvious for an artisan to modify the adhesive composition of Bagga so as to result in an adhesive of the type defined by appealed independent claim 1 in view of the Kamio, Lee and Vachon references. However, the requisite modification would involve selecting and combining from Bagga's extensive disclosure a particular type of epoxy resin and a particular type of latent curing agent, namely, a dihydrazide compound. This modification would further require using a dihydrazide compound in an amount (i.e., about 42-100 parts) which considerably exceeds the highest amount expressly disclosed by patentee (i.e., 30 parts; see lines 65-68 in column 8). In addition, Bagga's adhesive composition would have to be modified in such a way as to be curable at the

here claimed range of about 100-125°C as opposed to patentee's curability range of 180-200°C (see the sentence bridging columns 1 and 2). Finally, the modified adhesive composition of Bagga would have to be capable, upon cure, of providing a flexible and reworkable epoxy bond as required by the independent claim on appeal.

It is apparent to us that the applied prior art does not support a prima facie case of obviousness with respect to all of the aforementioned modifications to Bagga's adhesive composition which would be required in order to obtain an adhesive encompassed by appealed claim 1. For example, we agree with the appellants that Kamio would not have suggested modifying the Bagga composition so as to include a latent curing agent in the amount here claimed. As correctly argued by the appellants, the maximum amount of latent hardener or curing agent used by Kamio is 30 parts (e.g., see lines 56-60 in column 2) in contrast to the minimum amount of about 42 parts defined by the independent claim before us. We understand that Kamio further discloses that his adhesive includes an additional hardener, such as a hydrazide compound, in an amount up to 50 parts by weight (e.g., see lines 53-65 in column 1). However, this additional hardener is not described as a latent hardener or curing agent and indeed is

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disclosed separately from the adduct used by Kamio as his latent hardener or curing agent (e.g., see lines 27-30 in column 1). Under the circumstances, it is evident that the examiner has inappropriately considered patentee's additional hardener to be equivalent to and therefore suggestive with respect to the amount of a latent curing agent of the type disclosed by Bagga and claimed by the appellants.

Moreover, we find no support for the proposition that it would have been obvious to modify Bagga's adhesive composition so as to result in a cure temperature and, upon cure, a flexible and reworkable epoxy bond as required by the independent claim on appeal. We here emphasize that the claim 1 recitations concerning cure temperatures and the provision of a flexible and reworkable epoxy bond define properties of the appellants' claimed adhesive which cannot be ignored. This is because, in determining obviousness, we must first delineate the invention as a whole which involves not only the subject matter which is literally recited in the claim but also the properties of this subject matter. In re Antonie, 559 F.2d 618, 620, 195 USPQ 6, 8 (CCPA 1977). Also see In re Papesch, 315 F.2d 381, 391, 137 USPQ 43, 51 (CCPA 1963) (from the standpoint of patent law, a compound and all of its properties are inseparable).

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In light of the foregoing, we cannot sustain the examiner's section 103 rejection of claims 1 and 4 as being unpatentable over Bagga in view of Kamio and further in view of Lee or Vachon.

The decision of the examiner is reversed.

REVERSED

Bradley R. Garris	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
Charles F. Warren	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
Jeffrey T. Smith	)	
Administrative Patent Judge	)	

BRG:tdl

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